

## REVIEW

by Prof. Dr. **Zhelyazka Dimitrova Raykova**,

University of Plovdiv "Paisii Hilendarski"

of a dissertation for awarding the educational and scientific degree "**Doctor**"

by: Field of higher education: 1. *Pedagogical sciences*

Professional direction: 1.3. *Pedagogy of training in...*

Doctoral program: *Methodology of teaching biology*

**Author:** *Biser Sashkov Stanislavov*

**Topic:** **WEB-BASED TRAINING FOR HEALTHY LIFESTYLE IN BIOLOGY AND HEALTH EDUCATION IN 8TH GRADE**

**Scientific advisers:** Assoc. Dr. Margarita Yordanova Panayotova and Ch. Assistant Professor Zlatka Petkova Vakleva, PhD

### 1. General description of the presented materials

By order No. ПД – 21 – 1038 dated 09.06.2022 of the Rector of Plovdiv University "Paisiy Hilendarski", I have been appointed as a member of the scientific jury to ensure a procedure for the defence of a dissertation on the topic: Web-based training for healthy lifestyle in biology and health education in the 8th grade, to acquire the educational and scientific degree "**Doctor**".

The set of materials presented by the doctoral student in paper and electronic format is in accordance with Article 36 (1) of the Regulations for the Development of the Academic Staff of "Paisii Hilendarski" PU and includes the following documents:

- a request to the Dean of "Paisii Hilendarski" PU to disclose the procedure for the defence of a dissertation work;
- curriculum vitae in European format;
- minutes from the department council related to reporting the readiness to open the procedure and preliminary discussion of the dissertation work;
- dissertation work;
- abstract;
- a list of scientific publications on the subject of the dissertation;

- copies of scientific publications;
- declaration of originality and authenticity of the attached documents;
- a certificate of compliance with the specific requirements of the Faculty of Biology.

The comparison with the national minimum requirements for area 1. Pedagogical sciences Professional direction 1.3. Pedagogy of training in ... according to Decree No. 122 of June 29, 2018 amending and supplementing the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria, adopted by Decree No. 202 of the Council of Ministers from 2010, shows the following:

- Group A - 50 points - Dissertation work for awarding the educational and scientific degree "Doctor";
- Group D - 32.5 items - 6 articles published in scientific publications, referenced outside the indexed database.

The total number of points satisfies the minimum national requirements. I have not detected traces of plagiarism and unregulated borrowings from other scientific research and/or publication.

## **2. Short biographical data for the doctoral student**

Biser Stanislavov was born in 1971 in Ruse. In 1995, he graduated as a master's degree (teacher of biology and chemistry) at the University of St. Kliment Ohridski". After graduating, he worked as a biology, chemistry and Man and Nature teacher in various secondary schools in Sofia and Ruse. His many years of experience as a teacher is a condition for a deep understanding of the state and problems in biology and health education in Bulgarian schools. Due to his long years of experience as a teacher he deeply understand the state and problems in biology and health education in Bulgarian schools.

Biser Stanislavov's desire for professional development is visible from the large number of qualification courses and specializations (20 units) he has completed. In the period from August 2018 to July 2021, he is a full-time doctoral student at the Department of Botany and Biological Education, Faculty of Biology of Paisii Hilendarski University.

## **3. Actuality of the topic and appropriateness of the set goals and tasks**

The topic of the research is based around contemporary issues and is related to the development of the key competences that are at the centre of the educational systems in European countries and to the need for the integration of modern information and communication technologies with school education. In the conditions of the Covid19 pandemic

and its subsequent period, the opportunities for face-to-face training in all units of the education system were limited, which placed it in a new challenging and unfamiliar environment. This gives rise to the need for pedagogical research in this area. The choice of the topic of the dissertation is very well argued by the doctoral student and is a reflection of two strongly expressed trends in the development of the Bulgarian education system - the formation and development of key competencies and the Internet-related digitization of the educational process. The lack of similar research in the field of natural science education, and more specifically biology and health education, defines the research as timely and of a dissertation nature.

The doctoral student directs his scientific research to the challenges of forming and developing two key competences – digital competences and the ability to support sustainable development and for a healthy lifestyle and sports through web-based learning in biology and health education in the 8th grade.

The research concept is described with the necessary clarity and precision. The formulation of the object, subject, purpose, research tasks and hypotheses is done with the necessary competence and shows the readiness of the doctoral student to conduct a pedagogical study. The set goal is realistic and refers to the development of a Web-based learning model for the formation of students' healthy lifestyle competencies and to experimentally verify its effectiveness in the teaching process of Biology and Health Education in the 8th grade.

#### **4. Knowing the problem**

The theoretical overview is presented in the First Chapter, and the main research terms and concepts are extensively and qualitatively examined. The analysis of the nature, place and importance of web-based learning makes a very good impression. A sufficient number of classical and modern bibliographic sources have been skilfully used and a thorough interpretation of the concepts used has been carried out. The proposed systematization based on comparisons and analyses is combined with an expressed personal position and shows a very good understanding of the research problem.

#### **5. Research methodology**

The research methodology covers the mandatory requirements for a dissertation work. A clear research agenda is set out, described in Chapter Two, which is indicative of the depth and precision of the work. It would be good if the main part of the description of this program (the object, the subject, the purpose, the tasks, the hypothesis and the enumeration of the research

methods finds a place in the introduction of the dissertation, since the theoretical research methods are mainly used in the first chapter. The doctoral student has shown skills in the selection and scientific analysis of specialized literary sources, knowledge of a number of theoretical research methods and demonstrated successful application of a wide range of methods for empirical pedagogical research (testing, surveying, expert evaluation and statistical processing methods). The described pedagogical experiment was conducted at several stages, such as preliminary, main, final and implemented in practice. Each empirical data collection method is accompanied by a detailed toolkit.

A system of criteria and indicators adapted to the relevant educational content was used to measure the results of the study. Based on the statistically appropriately processed results, conclusions were drawn, which are described in Chapter Three. The number of participants in the empirical study is impressive (572 students from 4 schools), which ensures sufficient representativeness.

The experiment itself is very thoroughly described and I consider this to be one of the strengths of the thesis.

The applied complex methodology provides an opportunity for a reasoned answer to the posed research question, how the constructed model of web-based training for the formation of competencies for a healthy lifestyle among students and leads to an increase in the awareness of the students on the subject, building a positive attitude towards it and a change in student behaviour.

I highly appreciate Biser Stanislavov's ability to conduct precise pedagogical research, collect and process empirical data, formulate reasoned conclusions and describe all this in a clear and scientifically sound style.

## **6. Characterization and evaluation of the dissertation work**

The dissertation has a volume of 164 pages. The content is structured in an introduction, three chapters, conclusion, contributions, bibliography and 7 appendices. The main text contains 73 figures and 83 tables. The bibliography used includes 133 properly cited sources.

I accept the choice of the doctoral student for this sort of structuring the dissertation work, although I have a view that the content of the First Chapter should be divided into two parts, respectively for the web-based training and for the didactic characteristics of training for a healthy lifestyle. I believe that the content part related to web-based learning is rich enough in concepts and ideas and can have an independent character. Separating the results of the experiment in a separate chapter is justified only because of their large volume, because I accept

them as an integral part of the description of the pedagogical experiment. I think some of the data tables could have a place in the Dissertation Appendix.

The content of **First Chapter** is related to two topics - web-based learning and learning to build a healthy lifestyle as a component of school biology education. I very much appreciate the careful examination of the conceptual apparatus related to the digitization of education. Referring to the opinion of a large number of researchers in this field, the PhD student has made a thorough analysis of the various definitions and interrelationships, arguing his own judgment and formulating working definitions himself. The in-depth interpretation of the concepts and the proposed well-founded logical hierarchy (Fig. 11) are made with an understanding and expression of a personal position. The examined 7 models of web-based learning are very well described and systematized in the context of the set research objective. The choice of the Fadli model, which combines web-based training and conventional training (face-to-face) as a basis for the construction of the own model for the study is sufficiently substantiated. The construction of the website "I know about 7" with the domain <http://biserstan.ucoz.net/> is in accordance with the criteria and structure of this model.

The doctoral student shows good scientific preparation when describing the stages for building web-based training, which he later uses in the construction of his own model. The development of web-educational technologies is described in a comparative plan and very well systematized in the table. 1.10. The review of the most used educational platforms (LMS) in the last three years was done by the author in a sufficiently synthesized form, and their functional capabilities oriented to the learning process are presented in a comparative plan (Table 1.12).

Considering the qualities of the built own educational site "I know for 7", as well as the lessons on Biology and health education in the 8th grade developed by him for the "Ucha se" site, I believe that Biser Stanislavov possesses indisputable digital competences, which define him as a modern and a successful teacher. The good knowledge of the regulations in the country related to web-based learning and the skilful use of content analysis allowed the doctoral student to systematize and clarify the concepts, which I estimate as very useful for future research in this area. This, along with the proposed comparison of traditional and web-based learning, I think also has a contributing point. The comparison is made convincingly based on the understanding of many authors, on the basis of clear and precisely formulated indicators of comparison and is presented graphically in Table 1.15.

I appreciate the analysis, interpretation, systematization and conclusions made as a valuable contribution to the theory of e-learning.

All these considerations gain a more concrete practical focus by being linked to the specifics of teaching Biology and Health Education in the 8th grade. This has been done successfully in item 2.3 of the dissertation and is consistent with the opportunities provided by the "I know 7" site and with the author's lessons on the "Ucha se" site.

An analysis of the understanding of Healthy Lifestyle and the concepts related to it as didactic challenges has been made for this chapter. The described monitoring of the healthy lifestyle of adolescent students in Bulgaria and its conclusions served as a good basis for arguing the necessity of the undertaken pedagogical research.

The **Second chapter** "Methodology of Pedagogical Research" contains a presentation of the research concept and its corresponding tools. I highly appreciate the detailed description of the empirical study and its connection to the web-based resources of the created site. The constructed conceptual model for the formation of competences for a healthy lifestyle through Web-based teaching in Biology and Health Education, which is the objective of the study, is properly described and visualized successfully through fig. 2.1.

The **Third chapter** is dedicated to "The results of the pedagogical experiment and their analysis". It includes the presentation, statistical processing and analysis of the empirical-experimental facts collected by the author. My high assessment of the quality of this part of the dissertation is based on the large volume of data collected, their analytical processing and their summary and interpretation.

The content of the Conclusion contains a summary formulation of the results as a solution to the research tasks, confirmation of the hypothesis and the fulfilment of the initial purpose, a synthesized presentation of the conclusions and determination of the prospects for the future of the research. Here I once again confirm my high assessment of the author's scientific maturity and his ability to interpret pedagogical phenomena.

The style of writing the dissertation is scientifically sound, consistent with the modern technological vocabulary, the thought is very well logically constructed, and the formulations are clear and precise. The technical layout is very good.

## **7. Contributions and significance of the development for science and practice**

The candidate has identified nine contributions - two at the theoretical level and seven at the practical-applied level. I fully accept the self-assessment of the contribution of the analysis of the place and role of web-based learning to e-learning theory. The created conceptual model for the formation of competences for health education, in the conditions of web-based training

in Biology and health education in the 8th grade, undoubtedly enriches the methodology of teaching in biology.

I value the creation of educational resources to the created site "I know 7", the author's lessons on the site "I learn" as an important practical-applied contribution, as well as the description of the pedagogical experiment, which can serve as a good example for future dissertation research.

## **8. Evaluation of publications on the dissertation work**

The doctoral student has attached a list of 6 items of articles published in the period 2018 – 2022. One of them in Collection of reports from a student scientific conference and four of them in the Collection of scientific works of the Union of Scientists in Bulgaria - Plovdiv and one in the Pedagogical Forum, DIPKU - Thrace University. Two of them are independent and four are co-authored with the scientific supervisors. Thematically, the publications are related to the topic of the doctoral dissertation.

## **9. Personal participation of the doctoral student**

From the provided documents and publications, as well as from the dissertation work, I believe that the doctoral student Biser Stanislavov independently conducted the research work on his dissertation. The thorough description of the experiment shows that it was undoubtedly actually carried out. The writing style is the same in all publications, the abstract and the dissertation.

## **10. Abstract**

I certify that the abstract reflects the dissertation work in a summarized and short version.

## **11. Critical remarks and recommendations**

I have no critical notes on my dissertation proposed for review. I have certain recommendations mentioned above related to the structuring of work, which are not very important and do not detract from my assessment of the high quality of the dissertation research conducted.

## **12. Personal impressions**

I don't know the PhD student personally. I looked with great interest at the website he made, which I definitely liked.

### **13. Recommendations for future use of dissertation contributions and results**

In order to popularize the results of the research and its benefits, I recommend the doctoral student to prepare more publications for the scientific periodical, referenced and indexed in the global database Web of Science and Scopus. More active participation in international conferences, I believe, will be an important task for the professional development of Biser Stanislavov.

I recommend that the research continues by focusing on the latest technologies, such as Remote Control, Augmented Realty and Artificial Intelligence. I hope that mLearning will be included in the doctoral student's research.

### **CONCLUSION**

The dissertation **contains** *scientific, scientific-applied and applied results, which represent an original contribution to science* and **meet all the requirements** of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of the ZRASRB and the relevant Regulations of PU "Paisii Hilendarski".

The dissertation shows that the doctoral student **Biser Sashov Stanislavov** possesses sufficient and in-depth theoretical knowledge and professional skills in the scientific specialty Methodology of teaching in biology, demonstrating qualities and skills for independent conduct of scientific research.

Due to the above, I confidently give my **categorically positive assessment** of the conducted research, presented by the above-reviewed dissertation work, abstract, achieved results and contributions, and I propose to *the honorable scientific jury to award the educational and scientific degree "Doctor"* to **Biser Sashkov Stanislavov** in the field of higher education 1. Pedagogical sciences; professional direction 1.3. Pedagogy of training in...; doctoral program Methodology of teaching in biology.

08.09. 2022

Reviewer: .....

(Prof. Dr. Zhelyazka Raykova)